

insertion hole is too large, the wall of functionally gradient material will be too thin and handling during the production process prior to sintering will be difficult, resulting in breakage of the functionally gradient material. Moreover, even after the seal piece is created, deformation of a seal that is too thin during the subsequent process of manufacturing, such as when the silica light-emitting tube of the lamp is sealed by welding, would lead to problems in the manufacturing process.

Please amend the paragraph spanning pages 5 & 6 to read:

In Figure 1, an example of the lamp seal 20 using the functionally gradient material of this invention is shown which comprises functionally gradient material 21 and a lead bar (electrode bar) 11. The functionally gradient material 21 has an insertion hole 25 for the lead bar 11, and the lead bar 11 passes through the insertion hole 25 and is attached therein at a point of attachment 26, to be described hereafter, between the lead bar 11 and the functionally gradient material 21. The functionally gradient material has a non-conductive end 22 and a conductive end 23. Within the functionally gradient material 21, the inside diameter of the insertion hole 25 is enlarged from the point of attachment 26 to the non-conductive end 22, forming a cylindrical gap 24 between the lead bar 11 and the functionally gradient material 21.

In the Claims:

1. (Amended) A lamp seal comprising a functionally gradient material and a lead bar; wherein the functionally gradient material has layers of mixtures of electrically non-conductive material and conductive material in which a layer at one end is non-conductive and a layer at an opposite end is conductive, with intervening layers in which the proportion of conductive material increases moving from said one end to said opposite end; wherein the lead bar passes through a hole extending through the functionally gradient material entering in one of said ends and out the other of said ends; wherein the lead bar is attached in a conductive region of the functionally gradient material; and wherein the proportion of conductive material at a point of attachment of the lead bar to the functionally gradient material is no less than 0.6 Vol% and no more than 39 Vol%.